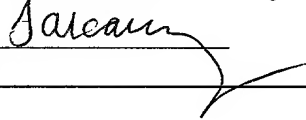


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Tamara Alcaraz

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Rob ANDERSON, et al.

Serial No.: To Be Assigned

Filing Date: Herewith

For: SIMULATION AND MODELLING
METHOD AND APPARATUS

Examiner: To Be Assigned

Group Art Unit: To Be Assigned

PRELIMINARY AMENDMENT

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

AMENDMENTS

In The Specification:

Please insert at the beginning of the specification: "This application claims priority to PCT/AU01/00462, filed on April 20, 2001, International Publication Number WO 01/82211 A1."

In the Claims:

Please cancel Claims 1-38.

Please add the following new claims:

-- 39. (New) A simulation method executed by a computer to simulate the behavior of a system, the system characterized by a particular condition, the method comprising:

processing a generic model applicable to all conditions of a class of conditions of which the particular condition is a member, the generic model including predetermined algorithmic expressions that define the behavior of the system according to predetermined characteristics; and

processing user-provided algorithmic expressions that define the behavior of the system according to a particular characteristic applicable to the particular condition but not to all the conditions.

40. (New) The simulation method of claim 39, wherein:

the step of processing the generic model includes processing the generic model in view of scalar values and tabular numeric values.

41. (New) The simulation method of claim 39, wherein:

the step of processing user-provided algorithmic expressions includes generating compiled user code, wherein the step of processing the user-provided algorithmic expressions includes executing the compiled user code to generate values for particular parameters corresponding to the particular characteristic.

42. (New) The simulation method of claim 41, wherein the step of processing user-provided algorithmic expressions:

is carried out by a virtual machine; and

includes providing the generated values for the particular parameters to a virtual data bus accessible to the step of processing the generic model.

43. (New) The simulation method of claim 42, wherein the step of processing the generic model includes requesting the generated values for the particular parameters from the virtual data bus.

44. (New) The simulation method of claim 43, wherein:
the scalar values and tabular numeric values are held in a data file;
the user-provided algorithmic expressions are held in the data file;
the simulation method includes parsing the data file to ascertain the scalar values, tabular numeric values and the user-provided algorithmic expressions.

45. (New) The simulation method of claim 39, wherein:
the simulation is divided into a plurality of separate intervals, and
the method includes applying the predetermined algorithmic expressions and the user-provided algorithmic expressions at the separate intervals.

46. (New) The simulation method of claim 45, wherein:
the intervals are intervals of space.

47. (New) The simulation method of claim 45, wherein:
the intervals are intervals of time.

48. (New) The simulation method of claim 45, and further comprising:
integrating together the results of the processing for the separate intervals.

49. (New) The simulation method of claim 48, wherein:
the integrating step is performed at each separate interval.

50. (New) The simulation method of claim 49, wherein the integrating step includes
at least one derivative function step at each separate interval.

51. (New) The simulation method of claim 48, and further comprising:
after each separate interval, updating pointers to one or more integration variables, such
that the updated pointers are accessible to processing between intervals.

52. (New) The simulation method of claim 39, and further comprising:

parsing a data file to ascertain the user-provided algorithmic expressions.

53. (New) The simulation method of claim 39, wherein the predetermined algorithmic expressions are equations of motion of elements of the system based on a predetermined number of degrees of freedom.

54. (New) The simulation method of claim 39, wherein the step of processing the generic model includes executing a C++ class object that includes a description of the generic model.

55. (New) The simulation method of claim 54, wherein the C++ class member object provides entry points to set initial values of the predetermined characteristics.

56. (New) The simulation method of claim 55, wherein the step of processing user-provided algorithmic expressions is carried out by a virtual machine;

the step of processing user-provided algorithmic expressions includes providing values for at least some particular parameters, corresponding to the particular characteristic, to a virtual data bus accessible to the step of processing the generic model;

the step of processing the generic model includes requesting the values for the particular parameters from the virtual data bus; and

the method further comprises accessing the entry points to set initial values for the predetermined characteristics and providing the initial values of the predetermined characteristics to the virtual data bus.

57. (New) A simulation apparatus to simulate the behavior of a system, the system characterized by a particular condition, the system comprising:

means for processing a generic model applicable to all conditions of a class of conditions of which the particular condition is a member, the generic model including predetermined

algorithmic expressions that define the behavior of the system according to predetermined characteristics; and

means for processing user-provided algorithmic expressions that define the behavior of the system according to a particular characteristic applicable to the particular condition but not to all the conditions.

58. (New) The simulation apparatus of claim 57, wherein:

the means for processing the generic model includes means for processing the generic model in view of scalar values and tabular numeric values.

59. (New) The simulation apparatus of claim 57, wherein:

the means for processing user-provided algorithmic expressions includes means for generating compiled user code, wherein the means for processing the user-provided algorithmic expressions includes means for executing the compiled user code to generate values for particular parameters corresponding to the particular characteristic.

60. (New) The simulation apparatus of claim 59, wherein the means for processing user-provided algorithmic expressions:

includes a virtual machine; and

includes means for providing the generated values for the particular parameters to a virtual data bus accessible to the means for processing the generic model.

61. (New) The simulation apparatus of claim 60, wherein the means for processing the generic model includes means for requesting the generated values for the particular parameters from the virtual data bus.

62. (New) The simulation apparatus of claim 61, wherein:

the scalar values and tabular numeric values are held in a data file;

the user-provided algorithmic expressions are held in the data file;

the simulation apparatus includes means for parsing the data file to ascertain the scalar values, tabular numeric values and the user-provided algorithmic expressions.

63. (New) The simulation apparatus of claim 57, wherein:
the simulation is divided into a plurality of separate intervals, and
the simulation apparatus includes means for applying the predetermined algorithmic expressions and the user-provided algorithmic expressions at the separate intervals.

64. (New) The simulation apparatus of claim 63, wherein:
the intervals are intervals of space.

65. (New) The simulation apparatus of claim 63, wherein:
the intervals are intervals of time.

66. (New) The simulation apparatus of claim 63, and further comprising:
means for integrating together the results of the processing for the separate intervals.

67. (New) The simulation apparatus of claim 66, wherein:
the integrating means performed an integration at each separate interval.

68. (New) The simulation apparatus of claim 67, wherein the integrating means
includes means for performing at least one derivative function at each separate interval.

69. (New) The simulation apparatus of claim 66, and further comprising:
means for, after each separate interval, updating pointers to one or more integration
variables, such that the updated pointers are accessible to processing between intervals.

70. (New) The simulation apparatus of claim 57, and further comprising:
means for parsing a data file to ascertain the user-provided algorithmic expressions.

71. (New) The simulation apparatus of claim 57, wherein the predetermined
algorithmic expressions are equations of motion of elements of the system based on a
predetermined number of degrees of freedom.

72. (New) The simulation apparatus of claim 57, wherein the means for processing the generic model includes means for executing a C++ class object that includes a description of the generic model.

73. (New) The simulation apparatus of claim 72, wherein the C++ class member object provides entry points to set initial values of the predetermined characteristics.

74. (New) The simulation apparatus of claim 73, wherein the means for processing user-provided algorithmic expressions includes a virtual machine;

the means for processing user-provided algorithmic expressions includes means for providing values for at least some particular parameters, corresponding to the particular characteristic, to a virtual data bus accessible to the means for processing the generic model;

the means for processing the generic model includes means for requesting the values for the particular parameters from the virtual data bus; and

the apparatus further comprises means for accessing the entry points to set initial values for the predetermined characteristics and providing the initial values of the predetermined characteristics to the virtual data bus. --

REMARKS

Prior to examination of this patent application on the merits, the following amendments are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 529172000100.

Respectfully submitted,



Dated: December 20, 2001

By: _____

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Specification:

Please insert at the beginning of the specification: "This application claims priority to PCT/AU01/00462, filed on April 20, 2001, International Publication Number WO 01/82211 A1."

In the Claims:

Please cancel Claims 1-38.

Please add claims 39-74.